CLAIM LISTING

1. (Original) An isolated nucleic acid molecule which encodes a polypeptide comprising an amino acid sequence having at least about 60% sequence homology to an amino acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2 and SEQ ID NO:3, wherein the polypeptide has one or more Tome-1 activities.

2. (Currently Amended) The isolated nucleic acid molecule which encodes the polypeptide of claim 1, wherein the Tome-1 activities are selected from the group consisting of modulating wee1 ubiquitinylation, modulating wee1 degradation, modulating an SCF complex component activity and modulating mitotic entry.

3. (Original) An isolated nucleic acid molecule which encodes a polypeptide, wherein the nucleic acid molecule encodes a nucleotide sequence having at least about 60% sequence homology to a nucleic acid comprising a nucleotide sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:5 and SEQ ID NO:6, and wherein the polypeptide has one or more Tome-1 activities.

4. (Original) An isolated nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:5 and SEQ ID NO:6.

5. (Original) An isolated nucleic acid molecule comprising a nucleotide sequence having at least about 85% sequence homology to a nucleotide sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:5 and SEQ ID NO:6, or a complement thereof.

6. (Original) An isolated nucleic acid molecule comprising a nucleic acid molecule which encodes a polypeptide comprising an amino acid sequence having at least about 85% sequence homology to an amino acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2 and SEQ ID NO:3.

7. (Original) An isolated nucleic acid molecule, which hybridizes to a complement of the nucleic acid molecule of any one of claims 1, 3, 4, 5 or 6.

8. (Original) An isolated nucleic acid molecule comprising a nucleotide sequence which is complementary to the nucleotide sequence of the nucleic acid molecule of any one of claims 1, 3, 4, 5 or 6.

9. (Original) An isolated nucleic acid molecule of any one of claims 1, 3, 4, 5 or 6, further comprising a nucleotide sequence encoding a heterologous polypeptide.

10. (Original) A vector comprising the nucleic acid molecule of any one of claims 1, 3, 4, 5 or 6.

11. (Original) The vector of claim 10, which is an expression vector.

12. (Original) A host cell transfected with the expression vector of claim 11.

13. (Original) A method of producing a polypeptide comprising culturing the host cell of claim 12 in an appropriate culture medium to, thereby, produce the polypeptide.

14. (Original) An isolated polypeptide comprising an amino acid sequence having at least about 60% sequence homology to an amino acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2 and SEQ ID NO:3, wherein the polypeptide has one or more Tome-1 activities.

15. (Original) The isolated polypeptide of claim 14, wherein the Tome-1 activities are selected from the group consisting of modulating wee1 ubiquitinylation, modulating wee1 degradation, modulating an SCF complex component activity and modulating mitotic entry.

16. (Original) An isolated polypeptide comprising the amino acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2 and SEQ ID NO:3.

17. (Original) An isolated polypeptide which is encoded by a nucleic acid molecule

comprising a nucleotide sequence having at least about 85% sequence homology to a nucleotide sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:5 and SEQ ID NO:6, or a complement thereof.

18. (Original) An isolated polypeptide comprising an amino acid sequence having at least about 85% sequence homology to an amino acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2 and SEQ ID NO:3.

19. (Original) The polypeptide of any one of claims 14, 16, 17 or 18, further comprising heterologous amino acid sequences.

20. (Original) An antibody which selectively binds to a polypeptide of any one of claims 14, 16, 17 or 18.

21. (Original) A method for detecting a polypeptide of any one of claims 14, 16, 17 or 18 in a sample comprising the steps of:

a) contacting the sample with a compound which selectively binds to the polypeptide; and

b) determining whether the compound binds to the polypeptide in the sample to thereby detect the presence of the polypeptide in the sample.

22. (Original) The method of claim 21, wherein the compound which binds to the polypeptide is an antibody.

23. (Original) A kit comprising a compound which selectively binds to a polypeptide of any one of claims 14, 16, 17 or 18 and instructions for use.

24. (Original) A method for detecting the nucleic acid molecule of any one of claims 1, 3, 4, 5 or 6 in a sample comprising the steps of:

a) contacting the sample with a nucleic acid probe or primer which selectively hybridizes to a complement of the nucleic acid molecule; and

b) determining whether the nucleic acid probe or primer binds to the complement of the nucleic acid molecule in the sample to thereby detect the presence of the nucleic acid molecule in the sample.

25. (Original) The method of claim 24, wherein the sample comprises mRNA molecules and is contacted with a nucleic acid probe.

26. (Original) A kit comprising a compound which selectively hybridizes to a complement of the nucleic acid molecule of any one of claims 1, 3, 4, 5 or 6 and instructions for use.

27. (Original) A method for identifying a compound which binds to a polypeptide of any one of claims 14, 16, 17 or 18 comprising the steps of:

a) contacting the polypeptide with a test compound; and

b) determining whether the polypeptide binds to the test compound.

28. (Original) The method of claim 27, wherein the binding of the test compound to the polypeptide is detected by a method selected from the group consisting of detection of binding by direct detection of test compound/polypeptide binding; detection of binding using a competition binding assay; and detection of binding using an assay for a Tome-1 activity.

29. (Original) The method of claim 28, wherein the Tome-1 activity is selected from the group consisting of modulating wee1 ubiquitinylation, modulating wee1 degradation, modulating an SCF complex component activity and modulating mitotic entry.

30. (Original) A method for modulating a Tome-1 activity of a polypeptide of any one of claims 14, 16, 17 or 18 comprising contacting the polypeptide with an effective amount of a compound to modulate the Tome-1 activity of the polypeptide.

31. (Original) A method for identifying a compound that modulates a Tome-1 activity of a polypeptide of any one of claims 14, 16, 17 or 18 comprising the steps of:

a) contacting the polypeptide with a test compound; and

b) determining a modulation of a Tome-1 activity of the polypeptide, thereby identifying a compound that modulates the activity.

32. (Original) The method of claim 31, wherein the Tome-1 activity is selected from the group consisting of modulating wee1 ubiquitinylation, modulating wee1 degradation, modulating an SCF complex component activity and modulating mitotic entry.

33. (Original) A method for identifying a compound that modulates mitosis comprising the steps of:

a) contacting a polypeptide of any one of claims 14, 16, 17 or 18 with the compound; and

b) determining a modulation of a Tome-1 activity, thereby identifying a compound that modulates mitosis.

34. (Original) The method of claim 33, wherein the Tome-1 activity is selected from the group consisting of modulating wee1 ubiquitinylation, modulating wee1 degradation, modulating an SCF complex component activity and modulating mitotic entry.

35. (Original) A method of modulating mitosis in a subject comprising administering to the subject a therapeutically effective amount of a compound identified in claim 33.

36. The method of claim 35, wherein the subject is a human.

37. (Original) The method of claim 35, wherein the compound is an antibody.

38. (Original) The method of claim 35, wherein the compound is an antisense molecule.

39. (Original) The method of claim 35, wherein the compound is a peptide.

40. (Original) The method of claim 35, wherein the compound is a small molecule.

41. (Original) The method of claim 35, wherein the compound inhibits mitosis.

42. (Original) The method of claim 35, wherein the compound enhances mitosis.

43. (Original) A method of modulating mitosis comprising contacting a polypeptide of any one of claims 16, 17 or 18 with an effective amount of a compound to modulate mitosis.

44. (Original) A method of modulating mitosis in a cell comprising contacting a cell expressing a polypeptide of any one of claims 14, 16, 17 or 18 with an effective amount of a compound to modulate mitosis in the cell.

45. (Original) A method of modulating mitosis in a subject comprising administering to the subject a therapeutically effective amount of a nucleic acid of any one of claims 1, 3, 4, 5 or 6.

46. (Original) The method of claim 45, wherein the subject is a human.

47. (Original) A method for identifying a compound that modulates a Tome-1 activity of a polypeptide of any one of claims 14, 16, 17 or 18, wherein the polypeptide is expressed in a cell, comprising the steps of:

a) contacting a cell expressing the polypeptide with a test compound; and

b) determining a modulation of a Tome-1 activity, thereby identifying a compound that modulates the activity.

48. (Original) The method of claim 47, wherein the activity is selected from the group consisting of modulating wee1 ubiquitinylation, modulating wee1 degradation, modulating SCF complex component activity and modulating mitotic entry.

49. (Original) A method of treating a cellular proliferative disorder in subject in need thereof, the method comprising administering to the subject a compound that modulates a Tome-1 activity.

50. (Original) The method of claim 49, wherein Tome-1 expression is inhibited.

51. (Original) The method of claim 49, wherein said cellular proliferative disorder is cancer.

[remainder of page intentionally blank]